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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR              | ATTORNEY DOCKET NO. | CONFIRMATION NO.       |
|--|-------------|-----------------------------------|---------------------|------------------------|
| 10/796,458   | 03/09/2004  | Roman Dubrovsky, Dec'd.           | NJIT-3P             | 2605                   |
| 7590<br>Roman Dubrovsky<br>4525 Henry Hudson Prkwy, Apt. B701<br>Bronx, NY 10471 |             | EXAMINER<br>HENDRICKSON, STUART L |                     |                        |
|  |             | ART UNIT<br>1754                  | PAPER NUMBER        |                        |
|  |             | MAIL DATE<br>08/10/2007           |                     | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| <b>Office Action Summary</b> | <b>Application No.</b>                | <b>Applicant(s)</b>      |  |
|------------------------------|---------------------------------------|--------------------------|--|
|                              | 10/796,458                            | DUBROVSKY, DEC'D. ET AL. |  |
|                              | <b>Examiner</b><br>Stuart Hendrickson | <b>Art Unit</b><br>1754  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 12 January 2007.

2a)  This action is **FINAL**.      2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1,2 and 4-18 is/are pending in the application.  
4a) Of the above claim(s) 7-17 is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1, 2, 4-6, 18 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
    Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
    Paper No(s)/Mail Date \_\_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_\_.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

2. Claims 1, 2, 4-6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zettl et al. (6,063,243) taken with Withers et al. 5876684.

Claims 1, 4 & 6: Zettl teaches a process for making carbon nanoparticles (including tubes) by arc discharge including: a consumable and non-consumable electrode (Column 4, lines 10-11; Figure 1, element 21), a longitudinal inner channel through the electrodes (Figure 1, element 12), and areas for quenching and condensing. Zettl also teaches delivering gases such as helium and catalyst particles through the inner channel to the plasma zone (Column 3, lines 58-67). Zettl does not teach the claimed consumable electrodes (but does teach graphite in col. 1) Withers clearly teaches a pair of graphite electrodes to make fullerenes; see col. 5. Using them in the process of Zettl is an obvious expedient to make the desired product. Moving the electrodes as they are consumed is an obvious expedient to keep the process going.

Claim 2: While Zettl does not teach moving the consumable electrode towards the plasma zone, it would have been obvious to someone of ordinary skill in the art to do so in order to keep a preferred distance between the electrodes during the reaction. Note also Withers.

Claims 1 & 5: Zettl does not explicitly teach a radial buffer gas outflow. The structure of the Zettl apparatus at the plasma zone, however, appears to be the same as the applicants', and a similar flow pattern would be expected.

With regard to the flow pattern, the applicants' claims do not show a patentable difference to that of Zettl. The claim, in its broadest interpretation, encompasses the flow pattern of any gas flowing out of a center hole between two parallel surfaces.

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Also of note in the claims, the term "radial buffer gas outflow" is not entirely clear. The figures show a single channel for flow, but the above term indicates a separate flow of the buffer gas. The outflow of gas would appear to include all of the feed materials, not just the buffer gas. Concerning claim 18, optimization of process parameters is an obvious expedient; *In re Boesch* 205 USPQ 215.

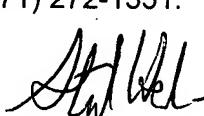
Applicant's arguments filed 1/12/07 have been fully considered but they are not persuasive.

Concerning the restriction, the examiner never alleged that the process could be done by hand. Nor was the examiner required to. It is believed that the apparatus could, in fact, process gases. Withers has been added in response to the amendment. The claims are not limited to the features argued on pg. 14.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (571) 272-1351.



Stuart Hendrickson  
examiner Art Unit 1754